



Critical Care Therapy and Respiratory Care Section

Category:	Clinical
Section:	Special Procedures
Title:	Resuscitation in the MICU
Policy #:	02
Revised:	03/00

1.0. DESCRIPTION

1.1 Definition: Resuscitation in the Medical Intensive Care Unit (MICU) encompasses all care necessary to deal with sudden and life-threatening events affecting the cardiopulmonary system and involves the identification, assessment, and treatment of patients in danger of or in frank arrest. This includes: (1) alerting the resuscitation team and the managing physician; (2) using adjunctive equipment and special techniques for establishing, maintaining, and monitoring effective ventilation and circulation; (3) monitoring the electrocardiogram and recognizing dysrhythmias; (4) using a defibrillator; (5) administering oxygen and drugs, including instillation of drugs via the endotracheal tube; and (6) stabilizing patients in the post-arrest period. This procedure will describe the role of the critical care therapist in the management of adult, pediatric, and infant patients requiring the interventions listed above.

1.2 Indications

1.2.1 Cardiac and/or respiratory arrest

1.2.2 The presence of conditions that may lead to cardiopulmonary arrest as indicated by rapid deterioration in vital signs, level of consciousness, and blood gas values, including but not limited to the following:

1.2.2.1 Airway obstruction

1.2.2.2 Acute myocardial infarction with cardiodynamic instability

1.2.2.3 Life-threatening dysrhythmias

1.2.2.4 Hypovolemic shock

1.2.2.5 Severe infections

1.2.2.6 Spinal cord or head injury

1.2.2.7 Drug overdose

1.2.2.8 Pulmonary edema

1.2.2.9 Anaphylaxis

1.2.2.10 Pulmonary embolism

1.3 Contraindications

- 1.3.1 The patient has indicated a desire not to be resuscitated and this has been clearly documented in the patient's medical record.
- 1.3.2 Resuscitation has been determined to be futile because of the patient's underlying condition or disease. The decision not to resuscitate in this case is made based on a thorough analysis of therapeutic benefit versus quality of life factors in consultation with a multidisciplinary team of expert health care practitioners, usually including members of the Bioethics Consult Service. This decision should be likewise documented in the patient's medical record.

1.4 Precautions

- 1.4.1 Strict adherence to universal precautions must be maintained during all resuscitation procedures. Gowns, gloves, masks, and goggles/face shields should be readily available at all times. Additionally, the availability of particulate respirators and/or HEPA filter masks must be maintained when patients confirmed with or who possibly have tuberculosis are inpatients in the MICU.
- 1.4.2 Inappropriate technique, handling and/or operation of the equipment of resuscitation may result in injury to the patient and/or staff. Members of the CODE team responsible for the procedures described below must be thoroughly familiar with the appropriate uses, operation, and potential hazards of the equipment, and demonstrate competency in the techniques of resuscitation. At a minimum, CODE team members must possess current American Heart Association certification in Basic Life Support.
- 1.4.3 All equipment should be rapidly available and functional. See 2.0. Equipment and Materials.

1.5 Hazards and/or Complications

- 1.5.1 Intubation: Failure to establish a patent airway, failure to intubate the trachea, failure to recognize intubation of the esophagus, upper airway trauma, laryngeal and esophageal damage, aspiration, cervical spine trauma, facial trauma, bronchospasm, laryngospasm, dental accidents, dysrhythmias, vaso-vagal stimulation, hypertension, and tachycardia.

- 1.5.2 Ventilation: Inadequate oxygen delivery, hypo- and/or hyperventilation, gastric insufflation and/or rupture, barotrauma, hypotension due to reduced venous return secondary to high mean intrathoracic pressure, vomiting and aspiration, and prolonged interruption of ventilation for intubation.
- 1.5.3 Circulation: Ineffective chest compressions, fractured ribs and/or sternum, laceration of internal organs, failure to restore circulation despite functional rhythm, severe hypovolemia, cardiac tamponade, hemo- or pneumothorax, hypoxia, acidosis, hyperkalemia, massive acute myocardial infarction, hypothermia, air embolism, and pulmonary embolism.
- 1.5.4 Electrical Therapy: Failure of defibrillator, shock to team members, inappropriate countershock, skin and muscle burn, infantile hematomyelia, induction of malignant dysrhythmias, interference with implanted pacemaker function, and fire hazard.
- 1.5.5 Drug administration: Inappropriate drug or dose, idiosyncratic or allergic response to drug, and endotracheal tube drug-delivery failure.

2.0 EQUIPMENT AND MATERIALS

The following describes the equipment and resources which fall under the purview of the critical care therapist in a resuscitation setting.

2.1 Ventilation and Oxygenation:

2.1.1 Manual resuscitator and appropriately sized mask

2.1.2 Oxygen flowmeter with oxygen source gas

Note: Infant manual resuscitators should have a pressure relief valve and a port for pressure monitoring. An in-line pressure manometer should be used when ventilating with an infant manual resuscitator.

2.2 Airway management:

2.2.1 Adult or pediatric bedside intubation box which includes oropharyngeal airways in a variety of sizes, endotracheal tubes in a variety of sizes, laryngoscope and blades (straight and curved); stylet, forceps, 20 ml syringe, tape or tube fixation device, and viscous lidocaine.

- 2.2.2 Suction equipment including wall suction, suction canister and wide bore tubing, suction catheters in appropriate sizes, and a Yankauer suction catheter.
- 2.2.3 Stethoscope
- 2.2.4 The therapist should be prepared to obtain additional airway management equipment in the event of a difficult intubation including a fiberoptic bronchoscope and light source, emergency cricothyrotomy tray, tracheostomy tray, or transtracheal catheter.

2.3 Monitoring and diagnostic procedures:

- 2.3.1 Electrocardiographic monitor and materials
- 2.3.2 Pulse oximeter and materials
- 2.3.3 Arterial blood gas analysis materials

3.0 PROCEDURE

- 3.1 Assist with the establishment of an airway via proper head positioning, manual ventilation via mask, and assistance with intubation. Stabilize the artificial airway, and assure proper airway position via chest auscultation. Be prepared to assist with alternative measures for establishment of an airway in the event of a difficult airway, e.g., fiberoptic bronchoscopy, cricothyrotomy, tracheostomy, or transtracheal catheter placement.
- 3.2 Assist with circulatory support via chest compressions.
- 3.3 Perform arterial blood sampling and analysis as needed to aid in the management of the resuscitation.
- 3.4 Maintain a patent airway via suction maneuvers as needed.
- 3.5 Assist with the instillation of emergency medications through the endotracheal tube.
- 3.6 Monitor and report the patient's clinical status as it relates to electrocardiographic rate and rhythm, blood pressure, level of consciousness, respiratory rate and rhythm, adequacy of pulses, pulse oximetry, and hemodynamic data (when available).
- 3.7 Assist with other emergency management techniques as needed, e.g., emergency thoracotomy, pericardiocentesis, or pacemaker placement.

- 3.8 Continue resuscitation assistance until vital signs are restored or until the physician orders discontinuation of the effort.

4.0 POST PROCEDURE

- 4.1 Ensure that all relevant blood gas data are documented on the patient's bedside flowsheet.
- 4.2 Properly discard all disposable materials used during the resuscitation.
- 4.3 Clean and disinfect all reusable equipment used during the resuscitation. Restock and secure the bedside intubation box.
- 4.4 Continue close monitoring of the patient in the post-arrest period, and report significant data to the physician.

5.0 DOCUMENTATION

Document all Critical Care Therapy interventions during the resuscitation on the patient's Continuous Ventilation Record.

6.0 REFERENCES

- 6.1 AARC Clinical Practice Guideline: Resuscitation in Acute Care Hospitals
- 6.2 Critical Care Medicine Department Policy on Special Procedures

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